



# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878  
Issue date: 01/01/2021 Revision date: 07/02/2024 Supersedes version of: Version: 2.0

## Cover Sheet

### MSDS

## ATTO 643 Antibody Labeling Kit (ALK 643-3R)

Kit Component	Component Number	Page
ATTO 643 NHS-ester	AD 643-3005	2
PBS buffer pH 7.4 with 0.02 % sodium azide	ALK_PBS-C01	10
DMSO	ALK_DMSO-C02	18
Sodium bicarbonate	ALK_BC-C03	27

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

Product form : Labeling Kit  
Substance name : ATTO 643 Antibody Labeling Kit  
Product code : ALK 643-3R  
Product component name : ATTO 643 NHS-ester  
Product component code : AD 643-3005

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

#### 1.2.1. Relevant identified uses

Laboratory chemicals, Fluorescent label, labeling of bio-molecules

#### 1.2.2. Uses advised against

No additional information available

### 1.3. Details of the supplier of the safety data sheet

#### Manufacturer

ATTO-TEC GmbH  
Martinshardt 7  
57074 Siegen  
T +49-271-23853-0 - F +49-271-23853-11  
[info@atto-tec.com](mailto:info@atto-tec.com)  
[www.atto-tec.com](http://www.atto-tec.com)

### 1.4. Emergency telephone number

Emergency number : +49-271-23853-0 (8:30 - 16:30)

Country	Organisation/Company	Address	Emergency number	Comment
United Kingdom	Guy's & St Thomas' Poisons Unit Medical Toxicology Unit, Guy's & St Thomas' Hospital Trust	Avonley Road SE14 5ER London	+44 20 7188 7188	

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

#### Classification according to Regulation (EC) No. 1272/2008 [CLP]

Not classified

#### Adverse physicochemical, human health and environmental effects

To our knowledge, this product does not present any particular risk, provided it is handled in accordance with good occupational hygiene and safety practice.

### 2.2. Label elements

#### Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Precautionary statements (CLP) : P102 - Keep out of reach of children.  
P301+P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.  
EUH-statements : EUH210 - Safety data sheet available on request.

### 2.3. Other hazards

No additional information available

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## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Name	Product identifier	%
ATTO 643 NHS-ester	AD 643-3005	100

### 3.2. Mixtures

Not applicable

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact	: Wash skin with plenty of water.
First-aid measures after eye contact	: Rinse eyes with water as a precaution.
First-aid measures after ingestion	: Call a poison center or a doctor if you feel unwell.

### 4.2. Most important symptoms and effects, both acute and delayed

No additional information available

### 4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam.

### 5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products in case of fire : Toxic fumes may be released.

### 5.3. Advice for firefighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area.

#### 6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

### 6.2. Environmental precautions

Avoid release to the environment.

### 6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Mechanically recover the product.  
Other information : Dispose of materials or solid residues at an authorized site.

### 6.4. Reference to other sections

For further information refer to section 13.

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## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

- Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment.
- Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

### 7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Store at -20°C

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### 8.1.1 National occupational exposure and biological limit values

No additional information available

#### 8.1.2. Recommended monitoring procedures

No additional information available

#### 8.1.3. Air contaminants formed

No additional information available

#### 8.1.4. DNEL and PNEC

No additional information available

#### 8.1.5. Control banding

No additional information available

### 8.2. Exposure controls

#### 8.2.1. Appropriate engineering controls

##### Appropriate engineering controls:

Ensure good ventilation of the work station.

#### 8.2.2. Personal protection equipment

Personal protective equipment symbol(s):



##### 8.2.2.1. Eye and face protection

###### Eye protection:

Protective goggles (EN 166)

##### 8.2.2.2. Skin protection

###### Skin and body protection:

Wear suitable protective clothing

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Hand protection:					
Protective gloves					
Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Reusable gloves	Nitrile rubber (NBR)	6 (> 480 minutes)	0,2	1 (< 4.0)	EN 374-3, EN 374-2

## 8.2.2.3. Respiratory protection

Respiratory protection:
No respiratory protection needed under normal use conditions

## 8.2.2.4. Thermal hazards

No additional information available

## 8.2.3. Environmental exposure controls

**Environmental exposure controls:**

Avoid release to the environment.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	: Solid	
Colour	: Various colours.	
Odour	: odourless.	
Odour threshold	: Not available	
Melting point	: Not available	
Freezing point	: Not available	
Boiling point	: Not available	
Flammability	: Not available	
Explosive limits	: Not applicable	
Lower explosion limit	: Not applicable	
Upper explosion limit	: Not applicable	
Flash point	: Not applicable	
Auto-ignition temperature	: Not applicable	
Decomposition temperature	: Not available	
pH	: Not available	
pH solution	: Not available	
Viscosity, kinematic	: Not applicable	
Solubility	: In water: excellent	Soluble in: dimethyl sulfoxide, dimethylformamide
Partition coefficient n-octanol/water (Log Kow)	: Not available	
Vapour pressure	: Not available	
Vapour pressure at 50 °C	: Not available	
Density	: Not available	
Relative density	: Not available	
Relative vapour density at 20 °C	: Not applicable	
Particle size	: Not available	
Particle size distribution	: Not available	
Particle shape	: Not available	
Particle aspect ratio	: Not available	
Particle aggregation state	: Not available	
Particle agglomeration state	: Not available	
Particle specific surface area	: Not available	
Particle dustiness	: Not available	

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## 9.2. Other information

### 9.2.1. Information with regard to physical hazard classes

No additional information available

### 9.2.2. Other safety characteristics

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

### 10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

### 10.5. Incompatible materials

No additional information available

### 10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## SECTION 11: Toxicological information

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral) : Not classified  
Acute toxicity (dermal) : Not classified  
Acute toxicity (inhalation) : Not classified

Skin corrosion/irritation : Not classified  
Serious eye damage/irritation : Not classified  
Respiratory or skin sensitisation : Not classified  
Germ cell mutagenicity : Not classified  
Carcinogenicity : Not classified

Reproductive toxicity : Not classified

STOT-single exposure : Not classified

STOT-repeated exposure : Not classified

Aspiration hazard : Not classified

### 11.2. Information on other hazards

No additional information available

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.

Hazardous to the aquatic environment, short-term (acute) : Not classified

Hazardous to the aquatic environment, long-term (chronic) : Not classified

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## 12.2. Persistence and degradability

No additional information available

## 12.3. Bioaccumulative potential

No additional information available

## 12.4. Mobility in soil

No additional information available

## 12.5. Results of PBT and vPvB assessment

No additional information available

## 12.6. Endocrine disrupting properties

No additional information available

## 12.7. Other adverse effects

No additional information available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

## SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

ADR	IMDG	IATA	ADN	RID
<b>14.1. UN number or ID number</b>				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
<b>14.2. UN proper shipping name</b>				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
<b>14.3. Transport hazard class(es)</b>				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
<b>14.4. Packing group</b>				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
<b>14.5. Environmental hazards</b>				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
No supplementary information available				

### 14.6. Special precautions for user

#### Overland transport

Not regulated

#### Transport by sea

Not regulated

#### Air transport

Not regulated

#### Inland waterway transport

Not regulated

#### Rail transport

Not regulated

### 14.7. Maritime transport in bulk according to IMO instruments

Not applicable

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

## SECTION 15: Regulatory information

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

#### 15.1.1. EU-Regulations

No REACH Annex XVII restrictions

SDB Fluoreszenzmarker is not on the REACH Candidate List

SDB Fluoreszenzmarker is not on the REACH Annex XIV List

SDB Fluoreszenzmarker is not subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of hazardous chemicals.

SDB Fluoreszenzmarker is not subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

#### 15.1.2. National regulations

No additional information available

### 15.2. Chemical safety assessment

No chemical safety assessment has been carried out

## SECTION 16: Other information

Abbreviations and acronyms:	
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration



# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disrupting properties

## Full text of H- and EUH-statements:

EUH210	Safety data sheet available on request.
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The classification complies with : ATP 12

SDS EU (REACH Annex II)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

Product form : Labeling Kit  
Substance name : ATTO 643 Antibody Labeling Kit  
Product code : ALK 643-3R  
Product component name : PBS buffer with 0.02% azide  
Product component code : ALK\_PBS-C01

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

#### 1.2.1. Relevant identified uses

Laboratory chemicals

#### 1.2.2. Uses advised against

No additional information available

### 1.3. Details of the supplier of the safety data sheet

#### Manufacturer

ATTO-TEC GmbH  
Martinshardt 7  
57074 Siegen  
T +49-271-23853-0 - F +49-271-23853-11  
[info@atto-tec.com](mailto:info@atto-tec.com)  
[www.atto-tec.com](http://www.atto-tec.com)

### 1.4. Emergency telephone number

Emergency number : +49-271-23853-0 (8:30 - 16:30)

Country	Organisation/Company	Address	Emergency number	Comment
United Kingdom	Guy's & St Thomas' Poisons Unit Medical Toxicology Unit, Guy's & St Thomas' Hospital Trust	Avonley Road SE14 5ER London	+44 20 7188 7188	

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

#### Classification according to Regulation (EC) No. 1272/2008 [CLP]

The substance is not classified, according to the CLP regulation.

#### Adverse physicochemical, human health and environmental effects

To our knowledge, this product does not present any particular risk, provided it is handled in accordance with good occupational hygiene and safety practice.

### 2.2. Label elements

#### Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Precautionary statements (CLP) : void  
EUH-statements : void

### 2.3. Other hazards

No additional information available

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Name	Product identifier	%
PBS Buffer with 0.02% azide	ALK_PBS-C01	100

### 3.2. Mixtures

Dangerous components		%
CAS: 26628-22-8	<b>Sodium azide</b> Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330; STOT RE 2, H373; Aquatic Chronic 1, H410	0.02

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact	: Wash skin with plenty of water.
First-aid measures after eye contact	: Rinse eyes with water as a precaution.
First-aid measures after ingestion	: Call a poison center or a doctor if you feel unwell.

### 4.2. Most important symptoms and effects, both acute and delayed

No additional information available

### 4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media : Use fire extinguishing methods suitable to surrounding conditions.

### 5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products in case of fire : Toxic fumes may be released.

### 5.3. Advice for firefighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area.

#### 6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

### 6.2. Environmental precautions

Avoid release to the environment.

### 6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Absorb with liquid binding material (sand, diatomite, acid binders, universal binders sawdust).  
Other information : Dispose of materials or solid residues at an authorized site.

### 6.4. Reference to other sections

For further information refer to section 13.

# Safety Data Sheet (SDS)

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## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

- Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment.
- Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

### 7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Store at +4°C

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### 8.1.1 National occupational exposure and biological limit values

No additional information available

#### 8.1.2. Recommended monitoring procedures

No additional information available

#### 8.1.3. Air contaminants formed

No additional information available

#### 8.1.4. DNEL and PNEC

No additional information available

#### 8.1.5. Control banding

No additional information available

### 8.2. Exposure controls

#### 8.2.1. Appropriate engineering controls

##### Appropriate engineering controls:

Ensure good ventilation of the work station.

#### 8.2.2. Personal protection equipment

Personal protective equipment symbol(s):



##### 8.2.2.1. Eye and face protection

###### Eye protection:

Protective goggles (EN 166)

##### 8.2.2.2. Skin protection

###### Skin and body protection:

Wear suitable protective clothing

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

<b>Hand protection:</b>					
Protective gloves					
Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Reusable gloves	Nitrile rubber (NBR)	6 (> 480 minutes)	0,2	1 (< 4.0)	EN 374-3, EN 374-2

## 8.2.2.3. Respiratory protection

<b>Respiratory protection:</b>
No respiratory protection needed under normal use conditions

## 8.2.2.4. Thermal hazards

No additional information available

## 8.2.3. Environmental exposure controls

**Environmental exposure controls:**

Avoid release to the environment.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: No information available
Odour	: No information available
Odour threshold	: No information available
Melting point	: No information available
Freezing point	: No information available
Boiling point	: No information available
Flammability	: No information available
Explosive limits	: No information available
Lower explosion limit	: No information available
Upper explosion limit	: No information available
Flash point	: No information available
Auto-ignition temperature	: No information available
Decomposition temperature	: No information available
pH	: No information available
pH solution	: 7.4
Viscosity, kinematic	: No information available
Solubility	: No information available
Partition coefficient n-octanol/water (Log Kow)	: No information available
Vapour pressure	: No information available
Vapour pressure at 50 °C	: No information available
Density	: No information available
Relative density	: No information available
Relative vapour density at 20 °C	: No information available
Particle size	: Not available
Particle size distribution	: Not available
Particle shape	: Not available
Particle aspect ratio	: Not available
Particle aggregation state	: Not available
Particle agglomeration state	: Not available
Particle specific surface area	: Not available
Particle dustiness	: Not available

# Safety Data Sheet (SDS)

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## 9.2. Other information

### 9.2.1. Information with regard to physical hazard classes

No additional information available

### 9.2.2. Other safety characteristics

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

None under normal processing.

### 10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

### 10.5. Incompatible materials

No additional information available

### 10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## SECTION 11: Toxicological information

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral) : Not classified  
Acute toxicity (dermal) : Not classified  
Acute toxicity (inhalation) : Not classified

Skin corrosion/irritation : Not classified  
Serious eye damage/irritation : Not classified  
Respiratory or skin sensitisation : Not classified  
Germ cell mutagenicity : Not classified  
Carcinogenicity : Not classified

Reproductive toxicity : Not classified

STOT-single exposure : Not classified

STOT-repeated exposure : Not classified

Aspiration hazard : Not classified

### 11.2. Information on other hazards

No additional information available

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.

Hazardous to the aquatic environment, short-term (acute) : Not classified

Hazardous to the aquatic environment, long-term (chronic) : Not classified

# Safety Data Sheet (SDS)

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## 12.2. Persistence and degradability

No additional information available

## 12.3. Bioaccumulative potential

No additional information available

## 12.4. Mobility in soil

No additional information available

## 12.5. Results of PBT and vPvB assessment

No additional information available

## 12.6. Endocrine disrupting properties

No additional information available

## 12.7. Other adverse effects

No additional information available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

## SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

ADR	IMDG	IATA	ADN	RID
<b>14.1. UN number or ID number</b>				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
<b>14.2. UN proper shipping name</b>				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
<b>14.3. Transport hazard class(es)</b>				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
<b>14.4. Packing group</b>				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
<b>14.5. Environmental hazards</b>				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
No supplementary information available				

### 14.6. Special precautions for user

#### Overland transport

Not regulated

#### Transport by sea

Not regulated

#### Air transport

Not regulated

#### Inland waterway transport

Not regulated

#### Rail transport

Not regulated

### 14.7. Maritime transport in bulk according to IMO instruments

Not applicable

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

## SECTION 15: Regulatory information

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

#### 15.1.1. EU-Regulations

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

#### 15.1.2. National regulations

No additional information available

### 15.2. Chemical safety assessment

No chemical safety assessment has been carried out

## SECTION 16: Other information

### Abbreviations and acronyms:

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant



# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disrupting properties

## Full text of H- and EUH-statements:

EUH210	Safety data sheet available on request.
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The classification complies with : ATP 12  
SDS EU (REACH Annex II)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

Product form : Labeling Kit  
Substance name : ATTO 643 Antibody Labeling Kit  
Product code : ALK 643-3R  
Product component name : DMSO  
Product component code : ALK\_DMSO-C02

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

#### 1.2.1. Relevant identified uses

Laboratory chemicals

#### 1.2.2. Uses advised against

No additional information available

### 1.3. Details of the supplier of the safety data sheet

#### Manufacturer

ATTO-TEC GmbH  
Martinshardt 7  
57074 Siegen  
T +49-271-23853-0 - F +49-271-23853-11  
[info@atto-tec.com](mailto:info@atto-tec.com)  
[www.atto-tec.com](http://www.atto-tec.com)

### 1.4. Emergency telephone number

Emergency number : +49-271-23853-0 (8:30 - 16:30)

Country	Organisation/Company	Address	Emergency number	Comment
United Kingdom	Guy's & St Thomas' Poisons Unit Medical Toxicology Unit, Guy's & St Thomas' Hospital Trust	Avonley Road SE14 5ER London	+44 20 7188 7188	

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

#### Classification according to Regulation (EC) No. 1272/2008 [CLP]

Not a hazardous substance or mixture according to Regulation (EC) No 1272/2008.

#### Adverse physicochemical, human health and environmental effects

To our knowledge, this product does not present any particular risk, provided it is handled in accordance with good occupational hygiene and safety practice.

### 2.2. Label elements

#### Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Precautionary statements (CLP) : void  
EUH-statements : void

### 2.3. Other hazards

Rapidly absorbed through skin.

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Name	Product identifier	%
DMSO (Dimethylsulfoxide) CAS: 67-68-5	ALK_DMSO-C02	100

### 3.2. Mixtures

Not applicable

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact	: Wash skin with plenty of water.
First-aid measures after eye contact	: Rinse eyes with water as a precaution.
First-aid measures after ingestion	: Call a poison center or a doctor if you feel unwell.

### 4.2. Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling in section 11

### 4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media : Water foam carbon dioxide (CO<sub>2</sub>) dry powder.

### 5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products in case of fire : Toxic fumes may be released.

### 5.3. Advice for firefighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

Emergency procedures : Do not breathe vapors, aerosols. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.

#### 6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

### 6.2. Environmental precautions

Avoid release to the environment.

### 6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

Other information : Dispose of materials or solid residues at an authorized site.

### 6.4. Reference to other sections

For further information refer to section 13.

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

- Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment.
- Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

### 7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Tightly closed. Store under inert gas. Substance is hygroscopic.

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### 8.1.1 National occupational exposure and biological limit values

No additional information available

#### 8.1.2. Recommended monitoring procedures

No additional information available

#### 8.1.3. Air contaminants formed

No additional information available

#### 8.1.4. DNEL and PNEC

No additional information available

#### 8.1.5. Control banding

No additional information available

### 8.2. Exposure controls

#### 8.2.1. Appropriate engineering controls

##### Appropriate engineering controls:

Ensure good ventilation of the work station.

#### 8.2.2. Personal protection equipment

Personal protective equipment symbol(s):



##### 8.2.2.1. Eye and face protection

###### Eye protection:

Protective goggles (EN 166)

##### 8.2.2.2. Skin protection

###### Skin and body protection:

Wear suitable protective clothing

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Hand protection:					
Protective gloves					
Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Reusable gloves	Latex	240 minutes	0,6	1 (< 4.0)	EN 16523-1

## 8.2.2.3. Respiratory protection

Respiratory protection:
Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds. The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

## 8.2.2.4. Thermal hazards

No additional information available

## 8.2.3. Environmental exposure controls

### Environmental exposure controls:

Avoid release to the environment.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Clear
Odour	: odorless
Odour threshold	: No information available
Melting point	: Melting point/range: 16 - 19 °C
Freezing point	: No information available
Boiling point	: 189°C
Flammability	: No data available
Explosive limits	: No information available
Lower explosion limit	: Lower explosion limit: 2,6 %(V)
Upper explosion limit	: Upper explosion limit: 28,5 %(V)
Flash point	: 87°C - closed cup - ASTM D 93
Auto-ignition temperature	: 300 - 302°C
Decomposition temperature	: >190°C
pH	: Not applicable
pH solution	: Not applicable
Viscosity, kinematic	: No information available
Water solubility	: completely miscible
Partition coefficient n-octanol/water (Log Kow)	: No information available
Vapour pressure	: No data available
Vapour pressure at 20 °C	: 0,55 hPa
Density	: 1.1 g/ml
Relative density	: No data available
Relative vapour density at 20 °C	: No data available
Particle size	: No data available
Particle size distribution	: No data available
Particle shape	: No data available
Particle aspect ratio	: No data available
Particle aggregation state	: No data available
Particle agglomeration state	: No data available
Particle specific surface area	: No data available
Particle dustiness	: No data available

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## 9.2. Other information

### 9.2.1. Information with regard to physical hazard classes

No additional information available

### 9.2.2. Other safety characteristics

Surface tension 43,5 mN/m at 20 °C, Dissociation constant 35,1, No additional information available, Relative vapor density 2,70 - (Air = 1.0).

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Forms explosive mixtures with air on intense heating. A range from approx. 15 Kelvin below the flash point is to be rated as critical.

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

Risk of explosion with:

acetylidene

organic halides

perchlorates

Acid chlorides

nonmetallic halides

iron(III) compounds

nitrates

fluorides

chlorates

hydrides

perchloric acid

Oxides of phosphorus

Nitric acid

silver compounds

silicon compounds

silanes

acid halides

Exothermic reaction with:

boron compounds

oxyhalogenic compounds

Potassium

sodium

Strong oxidizing agents

phosphorus halides

strong reducing agents

Acid chlorides

Strong acids

silver salt

nitrogen dioxide

Risk of ignition or formation of inflammable gases or vapours with:

potassium permanganate

### 10.4. Conditions to avoid

Strong heating.

### 10.5. Incompatible materials

No additional information available

### 10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

# Safety Data Sheet (SDS)

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## SECTION 11: Toxicological information

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral)	: LD50 Oral - Rat - male and female - 28.300 mg/kg (OECD Test Guideline 401)
Acute toxicity (dermal)	: LD50 Dermal - Rat - male and female - 40.000 mg/kg Remarks: (ECHA)
Acute toxicity (inhalation)	: LC0 Inhalation - Rat - male and female - 4 h - > 5,33 mg/l - dust/mist (OECD Test Guideline 403)
Skin corrosion/irritation	: Skin - Rabbit Result: slight irritation - 4 h (OECD Test Guideline 404)
Serious eye damage/irritation	: Eyes - Rabbit Result: slight irritation - 24 h (OECD Test Guideline 405)
Respiratory or skin sensitisation	: Maximization Test - Guinea pig Result: negative (OECD Test Guideline 406) Local lymph node assay (LLNA) - Mouse Result: negative (OECD Test Guideline 429)
Germ cell mutagenicity	: Test Type: Ames test Test system: Salmonella typhimurium Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative Test Type: sister chromatid exchange assay Test system: Chinese hamster ovary cells Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 479 Result: negative Test Type: Mutagenicity (mammal cell test): chromosome aberration. Sigma- D2650 Page 8 of 12 The life science business of Merck operates as MilliporeSigma in the US and Canada Test system: Chinese hamster ovary cells Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 473 Result: negative Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis) Species: Rat Application Route: Intraperitoneal Method: OECD Test Guideline 474 Result: negative
Carcinogenicity	: No data available
Reproductive toxicity	: No data available
STOT-single exposure	: No data available
STOT-repeated exposure	: No data available
Aspiration hazard	: No data available

### 11.2. Information on other hazards

#### Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

Repeated dose toxicity - Rat - male and female - Oral - 18 Months - NOAEL (No observed adverse effect level) - 3.300 mg/kg - LOAEL (Lowest observed adverse effect level) - 9.900 mg/kg Repeated dose toxicity - Monkey - male and female - Dermal - 18 Months - NOAEL (No observed adverse effect level) - >= 8.910 mg/kg - LOAEL (Lowest observed adverse effect level) - 990 mg/kg

RTECS: PV6210000

Exposure to large amounts can cause: redness of skin, Itching, burning, sedation, Headache, Nausea, Dizziness. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. No additional information available

## SECTION 12: Ecological information

### 12.1. Toxicity

Toxicity to fish	: static test LC50 - Danio rerio (zebra fish) - > 25.000 mg/l - 96 h (OECD Test Guideline 203).
EC50 - activated sludge - 10 - 100 mg/l - 30 min (ISO 8192) Ecology - general	
Toxicity to daphnia and other aquatic invertebrates	: static test EC50 - Daphnia magna (Water flea) - 24.600 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	: static test ErC50 - Pseudokirchneriella subcapitata (green algae) - 17.000 mg/l - 72 h (OECD Test Guideline 201)
Toxicity to bacteria	: EC50 - activated sludge - 10 - 100 mg/l - 30 min (ISO 8192) Ecology - general

### 12.2. Persistence and degradability

Biodegradability	: aerobic - Exposure time 28 d Result: 31 % - Not readily biodegradable. (OECD Test Guideline 301D)
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### 12.3. Bioaccumulative potential

No additional information available

### 12.4. Mobility in soil

No additional information available

### 12.5. Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

### 12.6. Endocrine disrupting properties

Assessment	: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.
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### 12.7. Other adverse effects

Stability in water	: 0,12 - 1,2 h at 30 °C pH 7 Remarks: Hydrolyzes readily.
--------------------	--

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
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## SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

ADR	IMDG	IATA	ADN	RID
<b>14.1. UN number or ID number</b>				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated



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<b>14.2. UN proper shipping name</b>				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
<b>14.3. Transport hazard class(es)</b>				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
<b>14.4. Packing group</b>				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
<b>14.5. Environmental hazards</b>				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
No supplementary information available				

## 14.6. Special precautions for user

### Overland transport

Not regulated

### Transport by sea

Not regulated

### Air transport

Not regulated

### Inland waterway transport

Not regulated

### Rail transport

Not regulated

## 14.7. Maritime transport in bulk according to IMO instruments

Not applicable

## SECTION 15: Regulatory information

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

#### 15.1.1. EU-Regulations

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

#### 15.1.2. National regulations

No additional information available

### 15.2. Chemical safety assessment

No chemical safety assessment has been carried out

## SECTION 16: Other information

### Abbreviations and acronyms:

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level

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DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration

RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disrupting properties

## Full text of H- and EUH-statements:

EUH210	Safety data sheet available on request.
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The classification complies with : ATP 12  
SDS EU (REACH Annex II)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

Product form : Labeling Kit  
Substance name : ATTO 643 Antibody Labeling Kit  
Product code : ALK 643-3R  
Product component name : Sodium bicarbonate  
Product component code : ALK\_BC-C03

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

#### 1.2.1. Relevant identified uses

Laboratory chemicals

#### 1.2.2. Uses advised against

No additional information available

### 1.3. Details of the supplier of the safety data sheet

#### Manufacturer

ATTO-TEC GmbH  
Martinshardt 7  
57074 Siegen  
T +49-271-23853-0 - F +49-271-23853-11  
[info@atto-tec.com](mailto:info@atto-tec.com)  
[www.atto-tec.com](http://www.atto-tec.com)

### 1.4. Emergency telephone number

Emergency number : +49-271-23853-0 (8:30 - 16:30)

Country	Organisation/Company	Address	Emergency number	Comment
United Kingdom	Guy's & St Thomas' Poisons Unit Medical Toxicology Unit, Guy's & St Thomas' Hospital Trust	Avonley Road SE14 5ER London	+44 20 7188 7188	

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

#### Classification according to Regulation (EC) No. 1272/2008 [CLP]

Not a hazardous substance or mixture according to Regulation (EC) No 1272/2008.

#### Adverse physicochemical, human health and environmental effects

To our knowledge, this product does not present any particular risk, provided it is handled in accordance with good occupational hygiene and safety practice.

### 2.2. Label elements

#### Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Precautionary statements (CLP) : void  
EUH-statements : void

### 2.3. Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Name	Product identifier	%
Sodium bicarbonate CAS: 144-55-8	ALK_BC-C03	100

### 3.2. Mixtures

Not applicable

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact	: Wash skin with plenty of water.
First-aid measures after eye contact	: Rinse eyes with water as a precaution.
First-aid measures after ingestion	: After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

### 4.2. Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling in section 11

### 4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media	: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
------------------------------	---

### 5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products in case of fire	: Carbon oxides, Sodium oxides, Not combustible. Ambient fire may liberate hazardous vapours.
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### 5.3. Advice for firefighters

Protection during firefighting	: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.
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### 5.4. Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

Emergency procedures	: Do not breathe vapors, aerosols dust. Evacuate the danger area, observe emergency procedures, consult an expert.
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#### 6.1.2. For emergency responders

Protective equipment	: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
----------------------	---

### 6.2. Environmental precautions

Avoid release to the environment.

### 6.3. Methods and material for containment and cleaning up

Methods for cleaning up	: Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry, dispose properly. Clean up affected area.
Other information	: Dispose of materials or solid residues at an authorized site.

# Safety Data Sheet (SDS)

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## 6.4. Reference to other sections

For further information refer to section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment.

Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

### 7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Tightly closed. Dry. Storage class (TRGS 510): 13: Non Combustible Solids.

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### 8.1.1 National occupational exposure and biological limit values

No additional information available

#### 8.1.2. Recommended monitoring procedures

No additional information available

#### 8.1.3. Air contaminants formed

No additional information available

#### 8.1.4. DNEL and PNEC

No additional information available

#### 8.1.5. Control banding

No additional information available

### 8.2. Exposure controls

#### 8.2.1. Appropriate engineering controls

##### Appropriate engineering controls:

Ensure good ventilation of the work station.

#### 8.2.2. Personal protection equipment

Personal protective equipment symbol(s):



##### 8.2.2.1. Eye and face protection

###### Eye protection:

Protective goggles (EN 166)

##### 8.2.2.2. Skin protection

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

## Skin and body protection:

Wear suitable protective clothing

## Hand protection:

Protective gloves

Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Reusable gloves	Nitrile rubber	480 minutes	0,11	1 (< 4.0)	EN 374

### 8.2.2.3. Respiratory protection

#### Respiratory protection:

Required when dusts are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system. Recommended Filter type: Filter type P1.

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

### 8.2.2.4. Thermal hazards

No additional information available

### 8.2.3. Environmental exposure controls

#### Environmental exposure controls:

Avoid release to the environment.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	: Crystalline solid
Appearance	: White
Odour	: odorless
Odour threshold	: No information available
Melting point	: Melting point/range: 270°C
Freezing point	: No information available
Boiling point	: Not applicable
Flammability	: The product is not flammable
Explosive limits	: No data available
Lower explosion limit	: No data available
Upper explosion limit	: No data available
Flash point	: Not applicable
Auto-ignition temperature	: 300 - 302°C
Decomposition temperature	: >50°C
pH	: Not applicable
pH solution	: Ca. 8.6 at 50 g/l at 20°C
Viscosity, kinematic	: No data available
Water solubility	: 93,4 g/l at 20 °C - OECD Test Guideline 105
Partition coefficient n-octanol/water (Log Kow)	: Not applicable for inorganic substances
Vapour pressure	: No data available
Vapour pressure at 20 °C	: 0,669 hPa at 20 °C - Regulation (EC) No. 440/2008, Annex, A.4
Density	: 2.160 g/cm <sup>3</sup>
Relative density	: 2,22 at 20 °C - OECD Test Guideline 109
Relative vapour density at 20 °C	: No data available
Particle size	: No data available

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

Particle size distribution	: No data available
Particle shape	: No data available
Particle aspect ratio	: No data available
Particle aggregation state	: No data available
Particle agglomeration state	: No data available
Particle specific surface area	: No data available
Particle dustiness	: No data available

## 9.2. Other information

### 9.2.1. Information with regard to physical hazard classes

No additional information available

### 9.2.2. Other safety characteristics

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No data available

### 10.2. Chemical stability

The product is chemically stable under standard ambient conditions (room temperature).

### 10.3. Possibility of hazardous reactions

Violent reactions possible with:

Alkali metals  
acids

Generates dangerous gases or fumes in contact with:  
ammonium compounds

### 10.4. Conditions to avoid

No information available.

### 10.5. Incompatible materials

No additional information available

### 10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## SECTION 11: Toxicological information

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral)	: LD50 Oral - Rat - male and female - 4.000 mg/kg (US-EPA)
Acute toxicity (dermal)	: No data available
Acute toxicity (inhalation)	: LC0 Inhalation - Rat - male and female - 4,5 h -> 4,74 mg/l - dust/mist (US-EPA)
Skin corrosion/irritation	: Skin - Rabbit Result: slight irritation - 4 h (US-EPA)
Serious eye damage/irritation	: Eyes - Rabbit Result: slight irritation (US-EPA)
Respiratory or skin sensitisation	: No data available
Germ cell mutagenicity	: No data available
Carcinogenicity	: No data available
Reproductive toxicity	: No data available
STOT-single exposure	: No data available
STOT-repeated exposure	: No data available
Aspiration hazard	: No data available

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

## 11.2. Information on other hazards

### Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

RTECS: VZ0950000

Exposure to large amounts can cause:, Gastrointestinal disturbance, Heavy or prolonged skin exposure may result in the absorption of harmful amounts of material. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. However, when the product is handled appropriately, hazardous effects are unlikely to occur.

Handle in accordance with good industrial hygiene and safety practice.

## SECTION 12: Ecological information

### 12.1. Toxicity

Toxicity to fish	: flow-through test LC50 - Lepomis macrochirus - 7.100 mg/l - 96 h (US-EPA)
Toxicity to daphnia and other aquatic invertebrates	: flow-through test EC50 - Daphnia magna (Water flea) - 3.100 mg/l - 48 h (US-EPA)
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	: semi-static test NOEC - Daphnia magna (Water flea) - > 576 mg/l - 21 d Remarks: (ECHA)

### 12.2. Persistence and degradability

No additional information available

### 12.3. Bioaccumulative potential

No additional information available

### 12.4. Mobility in soil

No additional information available

### 12.5. Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

### 12.6. Endocrine disrupting properties

Assessment	: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.
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### 12.7. Other adverse effects

No additional information available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
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## SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

ADR	IMDG	IATA	ADN	RID
<b>14.1. UN number or ID number</b>				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
<b>14.2. UN proper shipping name</b>				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated



# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

## 14.3. Transport hazard class(es)

Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
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## 14.4. Packing group

Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
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## 14.5. Environmental hazards

Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
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No supplementary information available

## 14.6. Special precautions for user

### Overland transport

Not regulated

### Transport by sea

Not regulated

### Air transport

Not regulated

### Inland waterway transport

Not regulated

### Rail transport

Not regulated

## 14.7. Maritime transport in bulk according to IMO instruments

Not applicable

## SECTION 15: Regulatory information

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

#### 15.1.1. EU-Regulations

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

#### 15.1.2. National regulations

No additional information available

### 15.2. Chemical safety assessment

No chemical safety assessment has been carried out

## SECTION 16: Other information

### Abbreviations and acronyms:

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number

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EC50	Median effective concentration
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration

RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disrupting properties

## Full text of H- and EUH-statements:

EUH210	Safety data sheet available on request.
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The classification complies with : ATP 12

SDS EU (REACH Annex II)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.